

# Qwest Foundation for Education

## Competitive Sub-grant Application Assurance Sheet

Project Title: Everyone Counts Amount of Request: \$ 3897.52

District Name: Post Falls School District Number: 273

Name of Certificated Teacher (or "lead teacher" if more than one): Suella Graybill

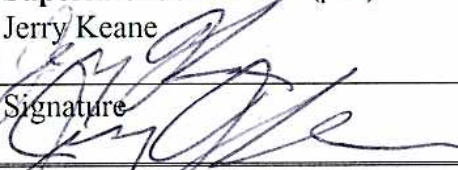
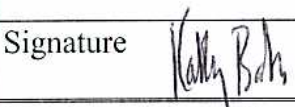
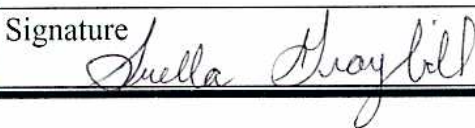
Name of School currently teaching at: Ponderosa Elementary School

Years taught in Idaho K-12 public education: 12

Content area(s) that you are teaching in Idaho K-12 public education: Math and Language Arts

I certify that if I receive a Qwest Foundation for Education Grant –

- I agree to create a video highlighting my project for the purposes of sharing best practices with other Idaho K-12 teachers.
- I agree to do one presentation on my project to other Idaho K-12 teachers before October 31, 2009.
- I agree to submit an electronic report to the Idaho State Department of Education before October 31, 2009.

<b>Superintendent Name</b> (print) Jerry Keane	E-mail jkeane@sd273.com	Telephone (208)773-1658
Signature 		
<b>Principal Name</b> (print) Kathy Baker	E-mail kbaker@sd273.com	Telephone (208)773-1508 ext. 224
Signature 		
<b>Teacher or Lead Teacher</b> (print) Suella Graybill	E-mail sgraybil@sd273.com	Telephone (208)773-1508 ext. 329
Signature 		

## Everyone Counts

### Abstract

Each child counts when calculating the promise of the next generation. Every child: the ones with the mathematically rich upbringing, the ones with the grown-up-sized worries, and the ones who strive for mere survival every day. It is paramount that each child be given the opportunity to reach his full capability and not be confined by a lack of instruction that can occur when a student disengages in his learning due to many factors outside of his control. This disengagement in learning is particularly worrisome in a spiraling math curriculum.

This math deficit can be prevented, and in fact acceleration can occur, when every child is engaged in high quality instruction in a medium of choice for today's child: interactive technology.

Old Model of Learning: A teacher poses a question to her math class. One child answers the question while the other 28 can choose to disengage, many choosing never to participate for fear of being wrong in front of their peers or simply because they don't have to participate.

When Everyone Counts: A teacher or student poses a question to the math class. Every child answers simultaneously and anonymously (except to the teacher). The varied responses are instantly formatted into a labeled and full color graph viewed on a six foot screen in the classroom. This immediate feedback leads to further rich discussion, lively debate, instructional clarification, and formative assessment that instantly informs the teachers of her students' levels of understanding which in turn allows her to dynamically adjust her teaching to her students' real, immediate, and changing needs.

Everyone *can* count in math with the integration of a student response system into a classroom rich in multimedia technology.

### Current Innovation Narrative

“Whatever it takes” has long been the mantra of Ponderosa staff. Weekly calibration meetings and a strong focus on using research based instruction and plain old fashioned relationship building ensure that we are doing everything possible to help students succeed.

System wide safety nets are in place at Ponderosa: embedded tier 2 interventions for students falling below 80% on weekly assessments in reading or math, a math fact lab, a six year partnership with the University of Idaho’s College of Education that aligns the training of prospective teachers with the needs of our children, and a Response to Intervention team that works to meet *any* need of *any* child. Teachers school wide work closely together to find the best instructional fit for each child. Every child under our collective roof is the responsibility of every staff member. This is why our teachers voluntarily earmarked their 2007-2008 classroom enhancement money from the Idaho Department of Education toward technology that would engage our changing learners.

With the collaboration of our staff and Parent Teacher Organization, every classroom at Ponderosa was equipped with a ceiling mounted projector wired to the internet, cable, DVD player, and document camera during the 2007-2008 school year. Families of staff members volunteered during countless weekends to install the equipment as it arrived. It paid off.

Student achievement in writing increased from the 25<sup>th</sup> percentile to the 85<sup>th</sup> percentile on national norms in student generated writing as a result from the use of the new equipment and the subsequent change in teaching methods. Teachers were able to guide students in analyzing authentic student writing samples immediately and model handwriting fluency. In this past, the former was limited to planning ahead (not always conducive to authenticity) and copying transparencies while the latter could not be modeled to an entire class at once.

Student achievement in math, reading, and language usage as measured by the Idaho Student Achievement Test increased at every grade level with an average of 90% of our students scoring at the proficient or advanced levels. The staff attributes this to the increased use of technology in every classroom for these subject areas which led to students being more excited about and engaged in their learning. Teachers used internet resources, animated tutorials, digital microscopes, and more. A partnership with the University of Idaho’s College of Education used online and LAN based math software and hands on science labs to work after school with at risk students to build positive relationships and skills. A computer lab time was embedded into the specialist schedule for each of our 549 students without forgoing instructional time simply by reducing recess by seven minutes each day. The staff voted to use site funds to pay for a computer specialist to lead computer lab times, then worked to collaborate with this specialist to align the technology instruction with classroom skills, resulting in double doses of instruction. Second and third graders even used the new classroom technology for weekly chess lessons. Not wanting to miss the technology “boat”, our music teacher even integrated technology through the use of software that allowed the students to compose their own songs then video tape music videos to accompany them! ✱

But even these improvements are not good enough. We want 100% of our students engaged in their learning 100% of the time. We believe that the implementation of a student response system will help us reach that goal.

## Proposal Narrative

The integration of a student response system (SRS) will ensure that every child will count during math instruction. The "Everyone Counts" project will begin in our fourth and fifth grade math classes. Current data shows that this is our greatest opportunity growth area. Despite a 9% increase in the number of students scoring proficient and advanced on the 5<sup>th</sup> grade math ISAT (68% in 2006-2007 to 77% in 2007-2008), this is clearly our greatest area of need.

Intermediate (4<sup>th</sup> and 5<sup>th</sup> grade) math students currently get multiple doses of basic classroom instruction with animated demonstrations of concepts, internet based application of those same skills in the computer lab, a mandatory supplemental small group math fact lab for those needing to improve their automaticity of facts, and a tier 2 intervention group for additional small group assistance to those scoring below proficiency levels.

Ponderosa's site council team, composed of staff and parent representatives from each grade level and specialist areas, are determined to do "whatever it takes" to increase student achievement in intermediate math through 100% engagement, or "on task" time, during the math classroom instructional periods. This will occur through the use of a student response system (SRS) during these classes, ensuring that every child is responding to every question all of the time. Students enter their numeric, true/false, or multiple choice input into handheld wireless infrared "clickers". All student responses are instantly compiled and graphed for all to see on a six foot classroom screen. The teacher has a separate screen on which she can see precisely which students have correctly responded and which need additional instruction or clarification. This instant and 100% feedback enables the teacher to either clarify a concept or accelerate through mastered concepts.

Math teachers will also employ the "peer instruction" pedagogical technique to deepen student metacognition. Using the SRS students first respond to a question posed by the instructor or a student. Partners then explain their underlying thinking, then answer again using the SRS with the new response patterns noted. A University of Wisconsin study shows that students taught using the peer instruction technique significantly outperform traditionally taught students while also developing higher level critical thinking skills.

The SRS technology will also enable our intermediate math teachers to give assessments that are automatically graded by the system and compiled in a grade book, creating more time for targeted instruction. One case study involving the use of the SRS with a similar population cited a 47% improvement in math scores over a one year period. Beyond classroom instruction, the SRS will allow us to analyze student answer patterns over time and use these to inform school wide professional development needs in math instruction.

Ponderosa's intermediate math instructors, Rachel Eifler and Suella Graybill, are actively involved in pursuing higher student achievement in math through involvement in district math committees, including a math curriculum adoption committee. Mrs. Eifler is currently piloting a new differentiated math series while Mrs. Graybill is involved in applying the research underlying the National Council of Teachers of Mathematics panel recommendations. They are each well versed in gathering and acting upon student achievement data to guide instruction as well as integrating the use of animated math tutorials, learning software, and internet resources to supplement their math instruction. These qualifications, along with a whole staff culture of using technology to excite learning, lend themselves well toward project feasibility.

Ponderosa has dedicated 10% of the 2009-2010 fiscal year budget to the addition of student response systems in the second and third grade math classrooms. This decision was driven by the results of the aforementioned case study and independent research reports in which student achievement in math was dramatically improved. In addition, the active Parent Teacher Organization will sustain the project through funding new teacher computers and the maintenance costs of projectors and document cameras. Staff development on the integration of the SRS in math instruction will be embedded into Ponderosa's professional development schedule and shared district wide while the implementation year information will be submitted to the Idaho Association of Elementary School Principal's quarterly publication.

Ponderosa anticipates that math achievement in grades four and five will increase to 90% or better as measured by the Idaho Student Achievement Test (ISAT). We also anticipate that the number of students scoring in advanced categories will increase from the 2007-2008 average intermediate levels of 33% to 50% in the implementation year due to the instant formative assessment data allowed by the SRS to inform instruction and accelerate the curriculum. Multiple case studies and independent research reports support the feasibility of this anticipated outcome.

An independent research study of student response systems (also called classroom performance systems or CPS) by IBM was presented by Harold M. Horowitz, Ph.D., Program Director of Educational Technology, IBM Corporation at the Sixth Conference of Interactive Instruction Delivery for the Society of Applied Learning Technology (SALT). The following is an excerpt:

"Based on the experimentation and findings described in this paper, interactive classrooms which use student response capabilities have been shown to improve the learning process and this concept should be explored further as we look for technology's role in the "classroom of the future" for both industrial and public education. However, much additional research is required beyond the limited studies presented here. Within IBM, the Advanced Technology Classroom concept is being currently expanded into other learning environments beyond management development to determine its suitability and needs for enhancements in hardware and courseware to address new educational requirements.

Most seem to agree that education is the key to the future of our society. Unfortunately, the classroom suffers from technical neglect and a lack of creativity which would enhance the instructor teaching capabilities. While technology has provided our society with vast improvements in quality of life and productivity during this century, the classroom has not yet been a prime benefactor of technical innovation and ingenuity. Most of today's educational research is focused on interactive video and related self-learning concepts but the classroom requires some special focus and attention since it will likely remain our primary educational delivery system for many future generations. This paper suggests that computer supported interactive video and related self-learning concepts but the classroom requires some special focus and attention since it will likely remain our primary educational delivery system for many future generations. This paper suggests that computer supported interactive classrooms could enhance learning by supplying the teacher with relatively inexpensive technology."

Specific case studies show that the use of the interactive student response systems improves student achievement. One study of SRS/CPS use at an elementary school in Toledo, Ohio showed an increase in 6<sup>th</sup> grade math scores from 19% to 66% proficiency during the implementation year. This and additional studies may be found at <http://www.einstruction.com/WhatIsCPS/Research/>

But what is the bottom line for the children? An interactive and fun learning environment where their input matters and everyone counts.

## Project Scope and Sequence

The “Everyone Counts” project will begin with the installation of the student response systems (SRS) in the 4<sup>th</sup> and 5<sup>th</sup> grade math classrooms of Mrs. Eifler and Mrs. Graybill, who teach all of the intermediate grade math lessons. These teachers will be trained using a “train the trainer” model so that they will be able to facilitate SRS workshops for the 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers at Ponderosa and for teachers district wide who are interested in integrating SRS in their classrooms. Training will include the features, input of interactive PowerPoint slides, grade book capabilities, and proper use and care of the SRS. Mrs. Eifler and Mrs. Graybill will also in-service our University of Idaho partners in the use of the SRS.

Mrs. Eifler and Mrs. Graybill will dedicate an initial class session to teaching the students the features, proper use of and care of the SRS student “clickers”. After this initial training session the SRS will be fully utilized in the classrooms.

At the end of each quarter the math teachers will compile student answer data to note trends that will inform professional development needs of our math teachers. For evaluation purposes of “Everyone Counts” teachers will also write a reflective summary noting the use of the SRS data to inform and guide their instruction.

At the end of the first year of implementation, the principal will compile and compare the ISAT math scores of students using the SRS system at Ponderosa and students of similar demographics at non-SRS use schools. Increases at proficient and advanced math levels will also be compiled at each grade level employing the SRS during math instruction. These results will be shared in a report written for the Idaho Association of Elementary School Principals’ quarterly publication.

## Budget Narrative

The president of iRespond has given Ponderosa a 25% discount on the bid purchase of two iRespond Lite classroom packages for a total price of \$2994. Each of these systems supports a class size of up to 30 students and is equipped with numeric, true/false, and multiple choice capabilities. Each classroom package includes one base station, a user manual, training CD, carrying cases, and classroom software CD. ✕

For an additional \$600, software aligned to the Idaho state content standards will be included. This "Content Solutions" package will streamline implementation completely aligned to state standards.

Gradebooks that interface with the iRespond system will cost \$95 for each classroom for a total of \$190. This will allow teachers to capture the responses and content standard specific assessments in an electronic gradebook allowing the analysis of student responses over time while informing professional development needs while also creating more time for teachers to accelerate or remediate students as necessary.

The subtotal of these two pilot classroom systems is \$3784. With shipping and handling costs of \$113.52, our total request from the QWEST foundation is \$3897.52.

These costs are one time costs only. The systems will be used for years to come ensuring 100% engagement in the classroom. We anticipate that the funding of the "Everyone Counts" proposal will have exponentially larger benefits as we provide case study reports, education, and in-service to Idaho teachers on the use of this technology.

# Qwest Foundation for Education Grant

## "Everyone Counts" Budget Sheet

Activity	Materials and Supplies	Capital Objects	Quantity	Price per unit	Total
100% Student Engagement and Immediate Formative Assessment to Guide Instruction		iRespond Lite Classroom Pack Student Response System (30 student controllers)	2	\$1,497.00	\$2,994.00
Technology Programming Aligned to Math State Standards Content	Content Solutions Package Software Aligned to State Standards		2	\$300.00	\$600.00
Longitudinal Analysis of Student Responses to Drive Professional Development	Interfacing Gradebook Software		2	\$95.00	\$190.00
	Shipping & Handling (3%)		1	\$113.52	\$113.52
					\$0.00
					\$0.00
					\$0.00
Grand total:					\$3,897.52